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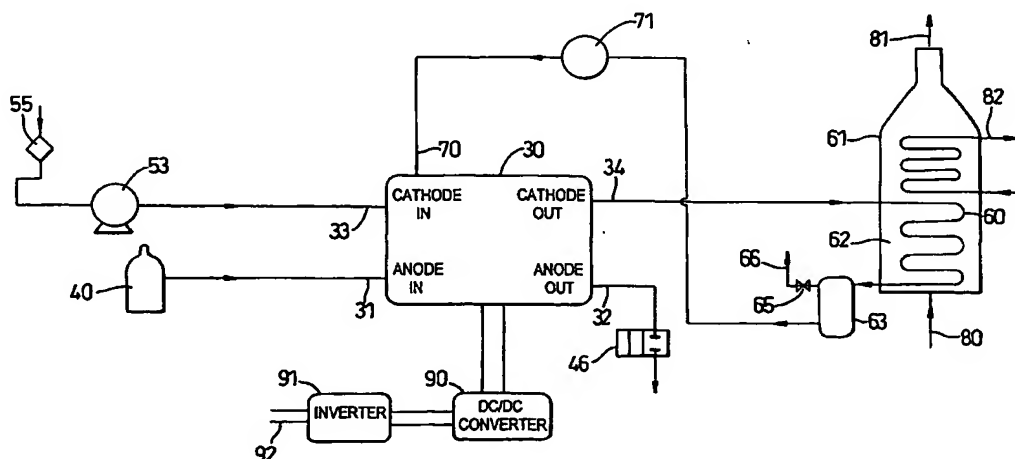
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(54) Title: THERMAL ENERGY MANAGEMENT IN ELECTROCHEMICAL FUEL CELLS



(57) Abstract: A fuel cell assembly supplies water and water vapour by-product to a cooling water circuit delivered to a thermal storage tank from which it can be recycled to the fuel cell stack as direct input to the membrane electrode assemblies, for use as fuel/oxidant preheat and/or direct water injection to the membrane electrode assembly. The purity of water delivered to the membrane is thereby assured. The thermal storage tank allows for a decoupling of the thermal and electrical loads on the fuel cell stack in a combined heat and electrical power delivery unit. Under low external electrical loads, the fuel cell stack and its cooling circuit may be used at high capacity to provide hot water.

WO 2004/049481 A2



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